IN THE CLAIMS

The current claims follow. For claims not marked as amended in this response, any difference in the claims below and the previous state of the claims is unintentional and in the nature of a typographical error.

1. (Original) For use in a wireless network, a base station capable of serving multiple mobile stations, said base station comprising:

a transceiver operable to receive from a select one of the multiple mobile stations a pilot strength signal and a power control signal; and

beam forming circuitry operable to form a downlink traffic beam spatially directed to serve said select one of said multiple mobile stations, said downlink traffic beam having a beam width set as a function of said pilot strength signal and said power control signal.

2. (Original) The base station as set forth in Claim 1 further comprising an adaptive antenna array connected to said beam forming circuitry to facilitate forming of said downlink beam by said beam forming circuitry.

3. (Original) The base station as set forth in Claim 1 wherein said beam forming circuitry comprises traffic beam forming circuitry operable to form said downlink traffic beam and pilot beam forming circuitry operable to form a pilot beam serving said multiple mobile stations.

4. (Original) The base station as set forth in Claim 3 wherein said pilot beam has a beam width wider than said beam width of said traffic beam.

5. (Original) The base station as set forth in Claim 3 wherein said pilot beam carries a pilot signal for use by said multiple mobile stations, said pilot strength signal being generated by said select one of said multiple mobile stations in response to said pilot signal received by said select one of said multiple mobile stations.

6. (Original) The base station as set forth in Claim 3 wherein said traffic beam carries a traffic signal associated with said select one of said multiple mobile stations, said power control signal being generated by said select one of said multiple mobile stations in response to said traffic signal received by said select one of said multiple mobile stations.

7. (Original) The base station as set forth in Claim 6 wherein said power control signal requests said base station to increase or decrease the power of said traffic signal.

8. (Original) The base station as set forth in Claim 1 wherein said power control signal comprises a digital gain unit.

9. (Original) The base station as set forth in Claim 1 wherein said transceiver is further operable to receive a first pilot strength signal and a second pilot strength signal over a beam update time and multiple power control signals during said beam update time.

10. (Original) The base station as set forth in Claim 9 wherein said multiple power control signals are received every 1.25 msec and wherein said beam update time is 100 msec.

11. (Original) The base station as set forth in Claim 9 wherein beam forming circuitry is further operable to calculate a differential pilot strength corresponding to a difference between a value of said first pilot strength signal and a value of said second pilot strength signal and a differential power control.

12. (Original) The base station as set forth in Claim 11 wherein said differential power control comprises a cumulative value of said power control signal over said beam update time.

13. (Original) The base station as set forth in Claim 11 wherein said differential power control corresponds to a difference between a value of said power control signal at a first time in said beam update time and a value of said power control signal at a second time in said beam update time.

14. (Original) The base station as set forth in Claim 11 wherein beam forming circuitry is further operable to decrease the beam width of said traffic beam when said differential power control is equal to 0 or -1.

15. (Original) The base station as set forth in Claim 11 wherein said beam forming circuitry is further operable to increase the beam width of said traffic beam when said differential power control is equal to +1 and said differential pilot strength is equal to +1 and decrease the beam width of said traffic beam when said differential power control is equal to +1 and said differential pilot strength is equal to 0 or -1.

16. (Original) A wireless network comprising a plurality of base stations, each one of said base stations capable of serving multiple mobile stations, said each base station comprising:

a transceiver operable to receive from a select one of the multiple mobile stations a pilot strength signal and a power control signal; and

beam forming circuitry operable to form a downlink traffic beam spatially directed to serve said select one of said multiple mobile stations, said downlink traffic beam having a beam width set as a function of said pilot strength signal and said power control signal.

17. (Original) The wireless network as set forth in Claim 16 wherein each said base station further comprises an adaptive antenna array connected to said beam forming circuitry to facilitate forming of said downlink beam by said beam forming circuitry.

18. (Original) The wireless network as set forth in Claim 16 wherein said beam forming circuitry comprises traffic beam forming circuitry operable to form said downlink traffic beam and pilot beam forming circuitry operable to form a pilot beam serving said respective multiple mobile stations.

19. (Original) The wireless network as set forth in Claim 18 wherein said pilot beam has a beam width wider than said beam width of said traffic beam.

20. (Original) The wireless network as set forth in Claim 18 wherein said pilot beam carries a pilot signal for use by said respective multiple mobile stations, said pilot strength signal being generated by said select one of said multiple mobile stations in response to said pilot signal received by said select one of said multiple mobile stations.

21. (Original) The wireless network as set forth in Claim 18 wherein said traffic beam carries a traffic signal associated with said select one of said multiple mobile stations, said power control signal being generated by said select one of said multiple mobile stations in response to said traffic signal received by said select one of said multiple mobile stations.

22. (Original) The wireless network as set forth in Claim 21 wherein said power control signal requests said respective base station to increase or decrease the power of said traffic signal.

23. (Original) The wireless network as set forth in Claim 16 wherein said power control signal comprises a digital gain unit.

24. (Original) The wireless network as set forth in Claim 16 wherein said transceiver is further operable to receive a first pilot strength signal and a second pilot strength signal over a beam update time and multiple power control signals during said beam update time.

25. (Original) The wireless network as set forth in Claim 24 wherein said multiple power control signals are received every 1.25 msec and wherein said beam update time is 100 msec.

26. (Original) The wireless network as set forth in Claim 24 wherein beam forming circuitry is further operable to calculate a differential pilot strength corresponding to a difference between a value of said first pilot strength signal and a value of said second pilot strength signal and a differential power control.

27. (Original) The wireless network as set forth in Claim 26 wherein said differential power control comprises a cumulative value of said power control signal over said beam update time.

28. (Original) The wireless network as set forth in Claim 26 wherein said differential power control corresponds to a difference between a value of said power control signal at a first time

in said beam update time and a value of said power control signal at a second time in said beam update time.

29. (Original) The wireless network as set forth in Claim 26 wherein beam forming circuitry is further operable to decrease the beam width of said traffic beam when said differential power control is equal to 0 or -1.

30. (Original) The wireless network as set forth in Claim 26 wherein said beam forming circuitry is further operable to increase the beam width of said traffic beam when said differential power control is equal to +1 and said differential pilot strength is equal to +1 and decrease the beam width of said traffic beam when said differential power control is equal to +1 and said differential pilot strength is equal to 0 or -1.

31. (Original) For use in a base station capable of serving multiple mobile stations, a method of controlling the beam width of a downlink traffic beam spatially directed to serve a select one of said multiple mobile stations, the method comprising the steps of:

receiving from said select one of said multiple mobile stations a pilot strength signal and a power control signal; and

forming said downlink traffic beam with a beam width set as a function of said pilot strength signal and said power control signal.

32. (Original) The method as set forth in Claim 31 wherein said forming further comprises using an adaptive antenna array to facilitate forming of said downlink beam.

33. (Original) The method as set forth in Claim 31 further comprising forming a pilot beam carrying a pilot signal serving said multiple mobile stations, said pilot beam having a beam width wider than said beam width of said traffic beam.

34. (Original) The method as set forth in Claim 33 wherein said receiving further comprises receiving said pilot strength signal generated by said select one of said multiple mobile stations in response to said pilot signal received by said select one of said multiple mobile stations.

35. (Original) The method as set forth in Claim 31 wherein said receiving further comprises receiving said power control signal generated by said select one of said multiple mobile stations in response to a traffic signal carried by said traffic beam and received by said select one of said multiple mobile stations.

36. (Original) The method as set forth in Claim 31 wherein said receiving further comprises receiving a first pilot strength signal and a second pilot strength signal over a beam update time and multiple power control signals during said beam update time.

37. (Original) The method as set forth in Claim 36 wherein said forming further comprises calculating a differential pilot strength corresponding to a difference between a value of said first pilot strength signal and a value of said second pilot strength signal and calculating a differential power control.

38. (Original) The method as set forth in Claim 37 wherein said calculating said differential power control further comprises calculating a cumulative value of said power control signal over said beam update time.

39. (Original) The method as set forth in Claim 37 wherein said calculating said differential power control further comprises calculating a difference between a value of said power control signal at a first time in said beam update time and a value of said power control signal at a second time in said beam update time.

40. (Original) The method as set forth in Claim 37 wherein said forming further comprises decreasing the beam width of said traffic beam when said differential power control is equal to 0 or -1.

41. (Original) The method as set forth in Claim 37 wherein said forming further comprises:

increasing the beam width of said traffic beam when said differential power control is equal to +1 and said differential pilot strength is equal to +1; and

decreasing the beam width of said traffic beam when said differential power control is equal to +1 and said differential pilot strength is equal to 0 or -1.